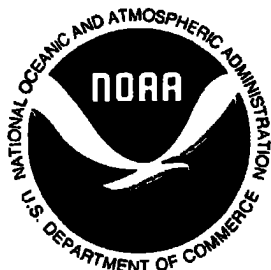


NOAA NESDIS
CENTRAL SATELLITE DATA PROCESSING CENTER



**Advanced Microwave Sounding Unit-B
(AMSU-B) Level 1b Format Differences**

Version 1.2

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1 Purpose

This document lists the modifications made to the current AMSU-B 1b format to coincide with similar updates to the other instruments' 1b formats for the NOAA-N/IJPS era. This new format will be implemented at or around the time of the launch of NOAA-N.

2 Documentation Updates

- Updated values for "Data Source" field in header record (byte offset 159-160) to include new source of data (e.g., Svalbard).
- The 4-byte data record field "Scan Line Quality Flags" (bytes 29-32) was split into four separate 1-byte fields. Only the way this field has been organized and documented in the format has changed. Its content and the location of each of its individual flags remain unchanged. The four "new" fields are
 - "Scan Line Quality Flags [<Reserved>] (zero fill)" (byte 29),
 - "Scan Line Quality Flags [Time Problem Code]" (byte 30),
 - "Scan Line Quality Flags [Calibration Problem Code]" (byte 31), and
 - "Scan Line Quality Flags [Earth Location Problem Code]" (byte 32).

3 Header Record Modifications

- Defined new field, "Offset between Start of Scan and Center of First FOV", in bytes 109-110. (These were spare bytes.) It is a single two-byte integer, and is the time, in milliseconds, between the start of the scan and the center of the scan's first FOV. It is included to aid a user in converting a 1b's scan line time back to the value as originally reported by the spacecraft.
- The meaning of the field "Count of Data Frames Without Frame Sync Word Errors" (byte offset 141-142) was changed in order to match the way the field is actually being set, and to be consistent with its definition for other instruments (e.g., HIRS and AVHRR).
- Changed bit 0 of the "Earth Location Bit Field" (byte offset 411-412) from "attitude error correction (0=not corrected; 1=corrected)" to "constant attitude error correction (0=not performed; 1=performed)". Defined bit 2, which was previously undefined, as "dynamic attitude error correction (0=not performed; 1=performed)".
- Added a new "LUNAR CONTAMINATION" section, which immediately follows the "NEW BIAS CORRECTION" section. It is located in what were spare bytes, and contains the following two new fields:
 - "Count of Scans Containing Lunar-Contaminated Space Views" -- A single 2-byte integer field located in bytes 2855-2856.
 - "Lunar Angle Threshold" -- A single 2-byte unsigned scaled-integer field located in bytes 2857-2858.

4 Data Record Modifications

- Unused (reserved) byte of the "Scan Line Quality Flags" field (byte offset 29) changed to contain additional calibration problem indicators (now named "Scan Line Quality Flags [Additional Calibration Problem Code]"). Defined bit 7 to indicate if the "scan line contains

one or more space views that are lunar contaminated". Defined bit 6 to indicate if the "lunar-contaminated scan line was able to be calibrated".

- Added a new field, "Total Applied Attitude Correction" (bytes 191-196). It is located in what were spare bytes. The preceding spare (zero fill) field decreased in size from 16 bytes (bytes 181-196) to ten bytes (bytes 181-190).
- Defined bit 17, which was previously undefined (zero fill), of "Navigation Status Bit Field" (bytes 197-200): "earth location at the satellite subpoint is accurate and reasonable, i.e., is within tolerance defined by ""Nadir Earth Location Tolerance"" in header (0=out of tolerance; 1=in tolerance)".
- For correctness, consistency, and clarity, references to "Local azimuth angle" in the "Angular Relationships" field (byte offset 213-752) changed to "Relative azimuth angle".
- Added a new field, "Lunar Angles" (bytes 1473-1480). It is located in what were spare bytes.
- Made several changes to "Invalid Data Bit Flags" (bytes 2673-2676):
 - Changed the note in this field from "(If bit = 1, associated telemetry words were not updated during most recent minor frame cycle - possibly due to lost frame.)" to "(If bit = 1, associated telemetry words are not valid, i.e., they are zero-filled, possibly due to lost frames.)"
 - Changed description of bit 0 in this field from "digital data words A01 through A26" to "digital data words A01 and A02".
 - Changed following "<Zero Fill>" field (bytes 2677-2680) with "<Reserved> (value undefined)".